

CLAIMS

The invention claimed is:

1. A method for joining pipes, comprising the acts of:

providing a first pipe having an indentation directed generally radially inward about a perimeter of said first pipe a predetermined distance from a first end of said first pipe, said indentation having an outer side and an inner side with respect to said first end of said first pipe;

providing a second pipe having a first end region including a first and at least a second protrusion each having an engaging surface and extending generally radially outward about a perimeter of said first end region a first and a second spaced distance from a first end of said second pipe respectively; and

assembling said first end region of said second pipe about said first end of said first pipe such that during assembly, said at least one protrusion on said first end region of said second pipe is forced past said indentation on said first end of said first pipe such that said engaging surface of said at least one protrusion engages against said inner side of said indentation when said first and said second pipes are joined.

2. The method of claim 1 wherein at least one of said first and said second pipes is thin walled and made from a generally deformable material.

3. The method of claim 1 wherein said first end region of said first pipe further includes an internal cross section that is larger than an external cross section of first end region of said second pipe such that said second pipe fits generally within said first end region of said first pipe.

4. The method of claim 3 wherein said second spaced distance of said second protrusion is greater than said first spaced distance of said first protrusion, wherein said first protrusion and said at least a second protrusion prevent said first end of said first pipe from moving relative to said second pipe.

5. The method of claim 2 wherein at least said first protrusion is wedge shaped with a thin end and a thick end, and oriented so that said thin edge of said wedge is closer to said first end than said thick end, and longitudinally oriented parallel to a longitudinal axis of said second pipe.

6. The method of claim 5 wherein at least said inner side of said indentation is shaped to match the longitudinal cross sectional shape of said thick end of at least said first protrusion.

7. The method of claim 2 wherein said at least said first protrusion is hemispherical.

8. The method of claim 2 wherein at least said first protrusion forms a ridge having a longitudinal axis perpendicular to the longitudinal axis of said second pipe.

9. The method of claim 2 wherein said first and said second pipes are dual walled.

10. The method of claim 2 wherein at least one of said first and said second pipes is made from an elastically deformable material such that during assembly of said first and said second pipes, said at least one protrusion being forced by said indentation causes at least some deformation of at least one of said first and said second pipes.

11. The method of claim 1 wherein said indentation in said first pipe includes an indentation ring disposed generally about the circumference of said first end of said first pipe.

12. The method of claim 1 wherein said first and said at least a second protrusion includes at least a third protrusion.

13. The method of claim 1 wherein said at least one protrusion includes a protrusion ring disposed generally about the circumference of said first end of said second pipe.

14. A system for joining pipes, comprising:

a first pipe having an indentation directed generally radially inward about a perimeter of said first pipe a predetermined distance from a first end of said first pipe, said indentation having an outer side and an inner side with respect to said first end of said first pipe;

a second pipe having a first end region including a first and at least a second protrusion extending generally radially outward about a perimeter of said first end region, said first and said at least a second protrusion each having an engaging surface adapted to engage said inner side of said indentation and lock said first and said second pipes into a fixed position relative to each other.

15. The system of claim 14 wherein at least one of said first and said second pipes is thin walled and made from a generally deformable material.

16. The system of claim 14 wherein said first end region of said first pipe further includes an internal cross section that is larger than an external cross section of first end region of said second pipe such that said second pipe fits generally within said first end region of said first pipe.

17. The system of claim 14 wherein said first end region of said second pipe further includes an internal cross section that is larger than an external cross section of first end region of said first pipe such that said first pipe fits generally within said first end region of said second pipe.

18. The system of claim 16 wherein said first and said at least a second protrusion are disposed a first and a second spaced distance from said first end of said second pipe respectively, wherein said second spaced distance is greater than said first spaced distance and said first and said at least a second protrusion prevent said first end of said first pipe from moving relative to said second pipe.

19. The system of claim 15 wherein at least said first protrusion is wedge shaped with a thin end and a thick end, and oriented so that said thin edge of said wedge is closer to said first end than said thick end, and longitudinally oriented parallel to a longitudinal axis of said second pipe.

20. The system of claim 19 wherein at least said inner side of said indentation is shaped to match the longitudinal cross sectional shape of said thick end of at least said first protrusion.

21. The system of claim 16 wherein said at least one protrusion is hemispherical.

22. The system of claim 15 wherein at least said first protrusion forms a ridge having a longitudinal axis perpendicular to the longitudinal axis of the second pipe.

23. The system of claim 15 wherein said first and said second pipes are dual walled.

24. The system of claim 15 wherein at least one of said first and said second pipes is made from an elastically deformable material such that during assembly of said first and said second pipes, at least said first protrusion being forced by said indentation causes at least some deformation of at least one of said first and said second pipes.

25. The system of claim 14 wherein said indentation in said first pipe includes an indentation ring disposed generally about the circumference of said first end of said first pipe.

26. The system of claim 14 wherein said first and said at least a second protrusion includes at least a third protrusion.

27. The system of claim 14 wherein at least said first protrusion includes a protrusion ring disposed generally about the circumference of said first end of said second pipe.

28. A pipe comprising:

a first end having an indentation extending generally radially inward around a circumference, said indentation having an outer side and an inner side, said outer side being closer to said first end than said inner side; and

a second end having an external diameter that is smaller than an internal diameter of said first end, said second end having a first and at a least second protrusion, disposed a first and a second distance from said second end respectively wherein said second spaced distance is larger than said first spaced distance.